

## REMARKS

This response replaces the “Response to Non-Final Office Action Mailed December, 13, 2006,” filed on March 12, 2007, which is withdrawn.

The Examiner has objected to claims 5-12, 17-24, 29-36, 38, 39, and 45-47 for informalities. The Examiner has rejected claims 1, 3, 5-7, 13, 15, 17-19, 25, 27, 29-31, 37, 39, 41, and 42 under 35 U.S.C. § 103(a) as being unpatentable over Polley et al., U.S. Patent No. 5,999,563 (*Polley*) in view of Kantschuk et al., U.S. Patent No. 7,046,751 (*Kantschuk*). Of these, claims 1, 13, 25, and 37 are the only independent claims. The Examiner has rejected claims 2, 14, 26, and 38 under 35 U.S.C. § 103(a) as being unpatentable over *Polley* in view of *Kantschuk* and Pakravan et al., U.S. Patent No. 6,259, 391 (*Pakravan*). The Examiner has objected to claims 8-12, 20-24, 32-36, and 45-47 as being dependent upon a rejected claim, but has indicated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### Claim Objections

Applicants have amended claims 5, 6, 8, 11, 17, 18, 23, 29-32, 35, 43 and 44 as indicated by the Examiner to overcome the objections to claims 5-12, 17-24, 29-36, 39, and 45-47 due to informalities. Accordingly, Applicants respectfully request that these objections be withdrawn. Additionally, Applicants have rewritten dependent claims 8, 20, 32 and 45 in independent form, overcoming the objections to claims 8-12, 20-24, 32-36, and 45-47. As indicated by the Examiner, these claims contain allowable subject matter. Therefore, Applicants submit that the objections to these claims have been overcome and the claims are now in a form for allowance. Their allowance is respectfully requested.

### Rejections under 35 U.S.C. § 103(a)

The Examiner has rejected claims 1, 3, 5-7, 13, 15, 17-19, 25, 27, 29-31, 37, 39, 41 and 42 as being unpatentable over *Polley* in view of *Kantschuk*. Of these claims, claims 1, 13, 25, and 37 are the only independent claims. Claims 1, 13, 25, and 37 have been

cancelled and have been replaced by new claims 48, 52, 53, and 57 respectively. The new claims have been written to provide more clarity to the subject matter being claimed.

With reference to new claim 48, the Examiner contends that *Polley* teaches the method of the former claim 1 except for exploiting a correlation between measured interference noise values across two or more of the receivers to reduce interference noise in the physical layer signals. The Examiner further contends that *Kantschuk* teaches, in the same field of endeavor, exploiting a correlation between measured interference noise values. *Kantschuk* addresses only near end crosstalk (NEXT), and in fact *Kantschuk* initializes noise cancellation filters at start-up when the lines are free of far end crosstalk (FEXT) interference as well as any out of domain or “alien” noise [*Kantschuk*, col.6, ll. 37-40]. New claim 48 refers to an interference that includes out of domain components of interference noise, which is noise generated from foreign, unknown sources and exploits the correlation, at least in part to reduce the out of domain components in the interference. The noise cancellation in *Kantschuk* addresses only known noise from NEXT.

Neither *Polley* nor *Kantschuk* teach or suggest a method of reducing interference noise including out of domain components or “alien” noise. *Polley* at col. 11 ll. 39-41 states that interference may contain NEXT, FEXT and white noise, but never addresses noise components from alien sources. Since *Kantschuk* initializes noise cancellation filters at start-up when the lines are free of out of domain sources as well as FEXT interference, the combination of *Polley* and *Kantschuk* lacks any teaching of reducing out of domain or alien noise as claimed by Applicants. Therefore, Applicants contend that this new claim is patentable over the combination of *Polley* and *Kantschuk*.

Additionally, new claims 49 – 51 claim a method of reducing noise by transmitting a symbol vector, which has been multiplied by a pre-processing matrix at the transmitters, and multiplying received vectors by a post-processing matrix at the receivers. Neither *Polley* nor *Kantschuk* teaches or suggests multiplying a symbol vector by a pre-processing matrix at a transmitter and received symbols by a post-processing matrix at a receiver. Because neither *Polley* nor *Kantschuk* teaches or suggests a method of reducing interference noise including out of domain interference components, and neither teaches or

suggests multiplying by a pre-processing and a post-processing matrix as claimed in new claims 49 – 50, Applicants contend that these claims are also patentable over the combination of *Polley* and *Kantschuk*.

New independent claims 52, 53, and 57 have been written in a manner similar to claim 48 and are also patentable over *Polley* in view of *Kantschuk* for the same reasons stated above. Because claims 1, 13, 25 and 37 have been canceled, their rejections are now moot. Claims 3, 5-7, 15, 17-19, 27, 29-31, 39, 41, and 42, now depend from independent claims 48, 52, 53 and 57, and are patentable over *Polley* in view of *Kantschuk* for the reasons stated above. Furthermore, these dependent claims recite a unique combination of elements not disclosed or suggested by *Polley* in view of *Kantschuk*. Applicants' respectfully request that the rejections for these claims also be withdrawn.

Claims 2, 14, 26 and 38 have been canceled and their rejections are now moot.

### **Conclusion**

Applicants have made a bona fide effort to respond to each and every requirement set forth in the Office Action. In view of the foregoing remarks given herein, Applicant respectfully believes this case is in condition for allowance and respectfully requests allowance of the pending claims. If the Examiner believes any detailed language of the claims requires further discussion, the Examiner is respectfully asked to telephone the undersigned attorney so that the matter may be promptly resolved. The Examiner's prompt attention to this matter is appreciated.

Applicants are of the opinion that no additional fee except for a one month extension is due as a result of this Amendment. If any additional charges or credits are necessary to complete this communication, please apply them to Deposit Account No. 23-3000.

Application No. 10/517,090  
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to Office Action mailed December 13, 2006

Respectfully submitted,

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